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Medical Force Protection: Cuba

Force Health Protection (FHP) Recommendations:
Protecting unit personnel from disease and non-battle injury (DNBI) is critical to maintaining operational readiness, particularly on deployments. Line Commanders are responsible for implementing an effective Force Health Protection (FHP) program. It is a medical responsibility to identify health threats and recommend appropriate countermeasures. This section provides specific recommendations that may be useful in devising the command FHP program. Though these recommendations are structured for field military operations, they can also be adapted for individual travelers.
For official FHP policy, refer to guidance and directives issued by the Joint Staff, CINC Surgeon, or other appropriate command channels. Consideration should be given to the complete spectrum of FHP, including infectious diseases, mental health, environmental exposures, injury prevention, jet lag, etc.

Assessment: AFMIC assesses Cuba as an INTERMEDIATE-RISK country, with an overall disease risk that will adversely impact mission effectiveness unless force health protection measures are implemented. The island's water system is not safe for drinking. Involve appropriate Preventive Medicine (PM) personnel in planning and preparation. Conduct *Pre-Deployment Health Assessment* as required by CINC or Joint Staff directives.

Major Diseases: The major transmission categories for which countermeasures are indicated appear below. Examples within specific disease categories are also provided.

Food- or Waterborne Diseases
Diarrhea, Hepatitis A
Others, including typhoid fever, paratyphoid fever and Brucellosis

Vector-borne Diseases
Dengue fever, others

Sexually Transmitted Diseases including HIV
Gonorrhea, Chlamydia, Herpes

Water-contact Diseases
Leptospirosis

Animal-contact Diseases
Rabies

Environmental Threats: Environmental contamination may present short- and long-term health risks to personnel deployed to Cuba. The greatest short-term health risks are associated with consumption of water contaminated with raw sewage or runoff containing fecal pathogens. The greatest long-term health risks are associated with ingestion of contaminated food products containing organochlorine insecticides. Although Cuba is located entirely within the tropical zone, cooler prevailing trade winds combine with warm Gulf Stream waters to produce a more temperate, semitropical climate. Cuba has a dry season from November through April and a wet season from May through October. Average annual rainfall totals more than 1,224 mm (50 in). An average of 8 hurricanes annually strike the Caribbean region between June and November. Industrial activities are concentrated in the cities of Cienfuegos, Havana, Mariel, and Nuevitas. Water contamination with raw sewage, industrial waste, and agricultural run-off is Cuba's most significant environmental problem. Water quality also is degraded by saltwater intrusion in coastal basin areas. More than 100 industrial facilities, including petroleum refining, slaughterhouses, distilleries, and commercial fishing, contribute to contamination of Havana Bay. Less than 40 have waste treatment plants. Cuba's environment is monitored through the Cuban Ministry of Public Health. Although Cuba is beginning to take steps to enforce environmental regulations by citing and fining polluters, the current level of regulation and enforcement is lacking.

Medical Force Protection countermeasures required before, during, and after deployment to the "area" are as follows:

<u>Requirements before Deployment</u>

1. **Before Deploying report to Medical to:**
   a. Ensure your Immunizations are up to date; specific immunizations needed for area: **MMR, Hepatitis A, Yellow fever, Tetanus (Td), Typhoid, Polio and Influenza.**
   b. If you have not been immunized against Hepatitis A (two dose series over 6 months) get an injection of Immunoglobulin with the initial Hepatitis A dose.
2. **Malaria Chemoprophylaxis: Not required.**
3. **Get HIV testing if not done in the past 12 months.**
4. **PPD per Service-specific or CINC/Task Force Policy**
5. **Make sure you have or are issued from unit supply: DEET, permethrin, bed nets/poles, sunscreen and lip balm. Treat utility uniform and bed net with permethrin.**

Requirements during Deployment

1. Consume food, water, and ice only from US-approved sources; **"Boil it, cook it, peel it, or forget it"**.
2. Involve preventive medicine personnel with troop campsite selection.
3. Practice good personal hygiene, hand-washing, and waste disposal.
4. Avoid sexual contact. If sexually active, use condoms.
5. Use DEET and other personal protective measures against insects and other arthropod-borne diseases. Personal protective measures include but are not limited to proper wear of uniform, use of bed nets, and daily "buddy checks" in tick and mite infested areas.
6. Minimize non-battle injuries by ensuring safety measures are followed. Precautions include hearing and eye protection, enough water consumption, suitable work/rest cycles, acclimatization to environment and stress management.
7. Eliminate food/waste sources that attract pests in living areas.
8. Avoid contact with animals and hazardous plants.

Requirements after Deployment

1. Receive preventive medicine debriefing after deployment.
2. Seek medical care immediately if ill, especially with fever.
3. Get HIV and PPD testing as required by your medical department or Task Force Surgeon.

VECTOR RISK ASSESSMENT PROFILE *(VECTRAP):* Cuba

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1. GEOGRAPHY: **Area** of 110,860 sq. km. (44,200 sq. mi.), about the size of Pennsylvania. ***Capital*** - Havana (pop. 2 million). ***Other cities*** - Santiago de Cuba, Camaguey, Santa Clara, Holguin, Matansas, Cienfuegos, and Pinar del Rio. **Terrain** - flat or gently rolling plains and hills. Mountains up to 2000 meters (6000 ft.) in the southeast. **Climate** - Tropical, moderated by trade winds. Dry season November - April; rainy season May - October.

2. VECTOR-BORNE DISEASES:

a. **Malaria**: Officially considered malaria-free by the World Health Organization. The 250 to 825 cases reported annually since the mid-1980s are tallied as imported or introduced. However, competent mosquito vector species are present, and risk exists for re-establishment of transmission.

b. **Dengue fever**: Havana saw an outbreak in 2002, and in June 1997, an epidemic of dengue fever, including dengue hemorrhagic fever (DHF)/dengue shock syndrome (DSS) was occurring in Santiago de Cuba province, southeastern Cuba. Cuban health officials reported 826 cases (3 fatal), but unofficial estimates indicated that up to 20,000 cases (at least 30 fatal) had occurred. Most cases reported in and around the provincial capital, about 75 km west of Guantanamo Bay Naval Station. Although intensive mosquito control measures reportedly were underway, they are unlikely to be effective in preventing spread to other areas of Cuba.

Previous major outbreaks occurred in 1977/78 (attributed to dengue virus serotype 1), and 1981 (attributed to dengue 2). During the peak of the 1981 epidemic, more than 11,000 cases were reported daily, and many deaths from dengue hemorrhagic fever (DHF) occurred. Cuban epidemiologists attributed the relatively large number of DHF cases to the closely spaced occurrence of outbreaks caused by dengue 1 and 2. No cases were reported during 1982 to 1996. However, 3,012 cases (205 DHF, 12 fatal) were reported from Santiago de Cuba in 1997.

c. OTHER: **Eastern Equine Encephalitis (EEE)** and **plague** are reported at very low levels of endemicity. The risk of acquiring these diseases is considered low. But if acquired, they would significantly reduce combat effectiveness.

3. DISEASE VECTOR INFORMATION:

a. The only potential vector of malaria in Cuba is the mosquito, *Anopheles albimanus*. *An. albimanus* has been reported resistant to the pesticides DDT and Dieldrin/HCH.

b. Dengue is transmitted by the mosquito, *Aedes aegypti*. This is a peridomestic mosquito that prefers to breed in artificial containers near human habitations. It is diurnally active and feeds indoors or out, often biting around the neck or ankles. It typically rests indoors after feeding. *Ae. aegypti* has been reported resistant to the pesticides DDT and Dieldrin/HCH.

c. EEE is transmitted by *Ae. sollicitans*.

d. The mosquito, *Culex quinquefasciatus* may occur in pestiferous numbers, particularly in urban areas or where highly organic breeding sites are present. This species is a potential vector of filariasis and encephalitis viruses. Malathion was widely used for *C. quinquefasciatus* control in Cuba until 1986 when, because of resistance, Cypermethrin replaced it. Cypermethrin resistance was detected in the central area of Havana in 1990.

4. DISEASE AND VECTOR CONTROL PROGRAMS:

a. Prevention and Control: The conscientious use of personal protective measures will help to reduce the risk of many vector-borne diseases. The most important personal protection measures include the use of DEET insect repellent on exposed skin, wearing

permethrin-treated uniforms, and wearing these uniforms properly. The use of DEET 33% lotion (2 oz. tubes: NSN 6840-01-284-3982) during daylight and evening/night hours is recommended for protection against a variety of arthropods including mosquitoes, sand flies, other biting flies, fleas, ticks and mites. Uniforms should be treated with 0.5% permethrin aerosol clothing repellent (NSN 6840-01-278-1336), per label instructions. NOTE: This spray is only to be applied to trousers and blouse, not to socks, undergarments or covers. Reducing exposed skin (e.g., rolling shirt sleeves down, buttoning collar of blouse, blousing trousers) will provide fewer opportunities for blood-feeding insects and other arthropods. Additional protection from mosquitoes and other biting flies can be accomplished by the use of screened eating and sleeping quarters, and by limiting the amount of outside activity during the evening/night hours when possible. Bednets (insect bar [netting]: NSN 7210-00-266-9736) may be treated with permethrin for additional protection.

b. Since 1981, the Cuban government has maintained an aggressive *Ae. aegypti* eradication program. This program includes the routine inspection of tens of thousands of larvatraps (sections of tires that contain water). Despite this intense effort, small foci of infestation are periodically found. In addition, collections of *Aedes albopictus* (another container-breeding mosquito and a potential disease vector) were reported in 1996. Although these infestations reportedly eliminated, their presence demonstrates that container-breeding habitats are still common.

c. The most important element of an *Aedes aegypti* control program is SOURCE REDUCTION. Eliminating or covering all water holding containers in areas close to human habitation will greatly reduce A. *aegypti* populations. Alternatively, containers may be emptied of water at least once a week to interrupt mosquito breeding. Sand or mortar can be used to fill tree holes and rock holes near encampments.

d. Expanded vector control recommendations are available by request.

5. IMPORTANT REFERENCES:

Contingency Pest Management Pocket Guide Technical Information Memorandum(TIM)24. Available from the Defense Pest Management Information Analysis Center (DPMIAC) www.afpmb.org/pubs/tims/ (DSN: 295-7479 COMM: (301) 295-7479). Best source for information on vector control equipment, supplies, and use in contingency situations.

Control of Communicable Diseases Manual-Edited by James Chin. Seventeenth Ed. 2000. Available to government agencies through the Government Printing Office. Published by the American Public Health Association. Excellent source of information on communicable diseases.

Medical Environmental Disease Intelligence and Countermeasures-(MEDIC). January 2002. Available on CD-ROM from Armed Forces Medical Intelligence Center, Fort Detrick, Frederick, MD 21702-5004. A comprehensive medical intelligence product that includes portions of the references listed above and a wealth of additional preventive medicine information.

Internet Sites- Additional information regarding the current status of vector-borne diseases in this and other countries may be found by subscribing to various medical information sites on the internet. At the Centers of Disease Control and Prevention home page subscriptions can be made to the Morbidity and Mortality Weekly Report(MMWR)and the Journal of Emerging Infectious Diseases. The address is www.cdc.gov. The World Health Organization Weekly Epidemiology Report (WHO-WER) can be subscribed to at www.who.int/wer. The web site for PROMED is http://www.promedmail.org/.
Although PROMED is not peer reviewed, it is timely and contains potentially useful information. The CDC and WHO reports are peer reviewed. Information on venomous arthropods such as scorpions and spiders as well as snakes, fish and other land animals can be found at the International Venom and Toxin Database website at http://www.kingsnake.com/toxinology/. Information on anti-venom sources can also be found at that site. Information on Poisonings, Bites and Envenomization as well as poison control resources can be found at www.invivo.net/bg/poison2.html.

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CUSTOMER SURVEY: In order to improve our VECTRAPS we would like your opinions on the quality and quantity of information contained in them. Please take time to fill out the survey which is contained as an attachment and Fax or e-mail your response back to us. Thank you for your cooperation.

ADDITIONAL INFORMATION ON DISEASE VECTOR SURVEYS, CONTROL AND SPECIMEN ID's WILL BE PROVIDED UPON REQUEST.